



# VRinHE

VIRTUAL REALITY IN  
HIGHER EDUCATION

## Methodology for implementing VR/AR technologies - step by step

Training Activity



E.N.T.E.R.



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# **VRinHE Project**

## **Virtual Reality in Higher Education**

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### **C1 Training Activity**

### **Training Module Lesson Plan**

**Module Number: 7**

**Module Title: Methodology for  
implementing VR/AR technologies –  
step by step**

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## 1. MODULE DESCRIPTION

This module has been designed to provide participants with the knowledge and skills required to understand the potential and methodology for implementing virtual reality (VR) and augmented reality (AR) technologies in higher education contexts. Its rationale is rooted in the project's aims to improve the quality of higher education and foster digital skills among university staff and learners. Integrating VR and AR technologies in higher education curricula offers innovative methods and approaches to teaching and learning, which can enhance student participation and engagement. The module is structured around a series of engaging activities that allow participants to learn about the benefits and challenges of integrating VR and AR and develop strategies for successful implementation. The active learning approach of the module includes a brainstorming session, theoretical learning, collaborative ideation, assessment through a quiz, and reflection through discussions in pairs. These activities cater to different types of learners and offer a constructivist approach to learning, allowing participants to shape their knowledge and competencies and integrate them into their work. This module also fosters situated learning by encouraging collaboration and knowledge-sharing among participants. Through these activities, participants will gain a comprehensive understanding of the potential benefits of integrating VR and AR technologies in higher education and be better equipped to implement these technologies in their respective teaching and learning contexts.

## 2. LEARNING OUTCOMES

After completing this module, participants will be able to:

- differentiate between virtual, augmented, and extended reality.
- understand the potential applications of virtual reality in higher education.
- understand the potential benefits and challenges of implementing VR in higher education curriculums.
- analyse and explain effective methods and strategies for successfully implementing VR in higher education.

## 3. INSTRUMENTS / TOOLS / SUPPORTING MATERIAL / RESOURCES TO BE USED

The resources used in this learning module are deliberately kept simple, using widely available materials and technologies to facilitate easy implementation in various institutional settings and potential adaptation to an online course format. This approach allows participants to focus on the contents of the module while also providing opportunities for engagement, such as creating posters to further enhance the learning experience. All necessary materials and resources for the successful implementation of the module are listed below.

### Files

- PPT - Methodology for implementing VR/AR technologies - step by step

### Links:

- Assessment quiz: <https://forms.gle/VqWy36JfDDZovuJb9>

### Videos:

- Learning languages using VR:  
<https://www.youtube.com/shorts/hIT3ZF50XTA?feature=share>

### Technology, materials and other resources

- Laptop and projector
- Each trainee should have a smartphone or tablet
- 6 poster papers or flip chart papers
- Pens/markers

## 4. METHODOLOGY

This module on the topic of integrating virtual and augmented reality in higher education provides an engaging and comprehensive learning experience for the trainees. To start, a brainstorming session sets a creative and relaxed tone, allowing participants to explore the topic without feeling the pressure to provide definitive answers. This initial activity also serves as an assessment of the group's existing knowledge and interests.

The module's development activity consists of a structured theoretical input including a PowerPoint presentation. This allows a compact and structured teaching format, that allows the review of several different topics, mostly based on the data from the projects' report "Integrating VR/AR technologies in Higher Education - Report on best practices across Europe". The content progresses from simple to more complex concepts, emphasizing the practical applications and potential implementation of extended reality technologies in higher education. The teacher encourages questions and feedback to ensure a clear understanding of the materials.

In the hands-on activity, participants work in groups to apply their newfound knowledge to a specific example. This collaborative exercise fosters connections between participants and allows for a deeper understanding of the material. Each group presents their work and conclusions to the class, promoting knowledge sharing and further discussions.

To assess learning outcomes, the module includes a Google Forms quiz comprising six questions related to the theoretical input. This assessment allows participants to review their understanding of the material and identify any areas that require further attention.

Finally, the reflection activity gives participants the opportunity to discuss their experiences and insights with a partner. This setting encourages even reserved trainees to share their thoughts and ideas, with guiding questions to inspire the dialogue. These discussions also provide an opportunity to address any questions or concerns and to share any additional knowledge gained throughout the module.

## 5. LEARNING ACTIVITIES PLAN

1. Introduction Activity – Brainstorming and the overview of the module’s content	
What	The introductory activity is designed to engage and activate participants in the topic of virtual reality. The session begins with a brainstorming session centred around the topic of virtual reality, allowing participants to explore their thoughts and ideas in a creative and no-pressure environment. The trainees are asked to name motives that comes to mind when thinking of virtual reality, with their responses recorded on a flip chart to create a word cloud. This should not take more than 5 minutes. The results of the brainstorming can then be shared and reviewed by the teacher, facilitating knowledge-sharing within the group. Following the brainstorming session, the teacher provides an overview of the module's agenda and addresses any potential questions.
How	<ul style="list-style-type: none"> <li>• PPT/projector</li> <li>• Flip chart/poster paper</li> <li>• Pens/markers</li> </ul>
Where	<ul style="list-style-type: none"> <li>• Classroom</li> <li>• PPT slides: 1-3</li> </ul>
Who	<p>The teacher leads the brainstorming session and motivates the trainees to collect motives associated to the topic of virtual reality. The trainees collect different ideas that they connect with virtual reality. Those are read aloud by the teacher and potential questions can be answered.</p> <p>At the end of this part, the teacher explains the plan for the module, whilst the trainees listen.</p>
Estimated Time	10 Minutes
2. Development activity – Theoretical input	
What	During the development activity, the teacher provides a theoretical input using a PowerPoint presentation. The presentation covers

	essential knowledge about virtual reality (VR) and its application in higher education, ranging from an introductory level to a more in-depth exploration of the theoretical content, including objectives, teaching models, and learning theories related to the implementation of augmented and virtual reality in higher education. Additionally, this section will include a review of the benefits and challenges associated with the use of these technologies in higher education curricula. The methodology of implementing virtual and augmented reality in curricula is also discussed, following a six-step model.
How	<ul style="list-style-type: none"> <li>• PPT/projector</li> </ul>
Where	<ul style="list-style-type: none"> <li>• Classroom</li> <li>• PPT slides: 4-18</li> </ul>
Who	<p>The teacher leads the theoretical presentation and answers potential questions.</p> <p>The trainees listen carefully and are welcome to take notes or ask questions.</p>
Estimated Time	20 minutes
<b>3. Hands on activity – Exploring implementation possibilities of VR in HE in groups</b>	
What	<p>The trainees will be divided into 5 teams, with the team size being determined by the overall group size. Each group will be assigned one of the following scenarios based on the implementation of: Virtual Labs, Immersive Learning, Simulation-Based Learning, Virtual Field Trips, or Collaborative Learning. The objective is for each group to think of one example for implementing virtual reality in higher education based on the assigned scenario, and to create a poster highlighting their approach. The poster and implementation strategy should be based on one example and address the following key questions:</p> <ol style="list-style-type: none"> <li>1. Which scientific field could benefit from this method?</li> <li>2. How can this approach be integrated into the curriculum in this example?</li> </ol>



	<p>3. What are the benefits of implementing this method in the curriculum?</p> <p>4. What are the challenges that could arise when implementing this method?</p> <p>5. How could those challenges be handled?</p> <p>After 25 minutes of group work, the groups give short presentations of their examples of implementation and the conclusions that they have gained through the process.</p>
How	<ul style="list-style-type: none"> <li>• 5 poster papers/flip chart papers (1 per group)</li> <li>• Pens/markers</li> <li>• PPT/projector</li> </ul>
Where	<ul style="list-style-type: none"> <li>• Classroom</li> <li>• PPT slides: 19-20</li> </ul>
Who	<p>The teacher explains the exercise and then sorts the trainees in smaller groups by counting from 1 to 5. After that the poster papers and pens or markers are given to the groups.</p> <p>The trainees proceed with the group work and create a poster to their topic. After the 25 minutes are up, they present their findings to the rest of the group.</p> <p>The teacher moderates the presentations and helps with answering potential questions.</p>
Estimated Time	40 minutes
<b>4. Assessment activity – Quiz</b>	
What	<p>The assessment activity is based on a brief quiz, designed to allow participants to interactively explore and evaluate their understanding of the material covered in the module. The quiz is designed to be concise and consists of six questions that reflect the key concepts and knowledge acquired throughout the lesson.</p> <p>After the participants finish taking the test, the teacher asks the trainees the following questions:</p> <p>1. Are you happy with your results?</p>

	<p>2. Did any additional questions come up regarding the discussed topics?</p> <p>Depending on the participants answers, the teacher can offer additional learning support through answering open questions or revising topics that are still unclear.</p>
How	<ul style="list-style-type: none"> <li>• PPT/projector</li> <li>• Participant's mobile phones or tablets</li> </ul>
Where	<ul style="list-style-type: none"> <li>• Classroom</li> <li>• PPT slides: 21</li> <li>• Google forms quiz: <a href="https://forms.gle/VqWy36JfDDZovuJb9">https://forms.gle/VqWy36JfDDZovuJb9</a></li> </ul>
Who	<p>The teacher moderates the quiz and motivates the trainees to participate, whilst also helping if there are any issues with the usability of the materials.</p> <p>The participants answer the questions and review their knowledge.</p>
Estimated Time	10 minutes
5. Reflection activity – Discussion in pairs	
What	<p>To conclude the lesson, a reflection activity is planned where participants are asked to reflect in pairs on their learning experiences throughout the module. The trainees engage in a discussion with their partner to share what they learned, any challenges they faced, and their perceptions on the implementation of virtual reality in their teaching or learning context. The reflection activity is guided by the following questions:</p> <ol style="list-style-type: none"> <li>1. What was the most important thing you learnt today?</li> <li>2. What is your impression of the integration of VR in higher education?</li> <li>3. Can you imagine VR being used in a higher education institution that you are part of? How could that look like?</li> </ol> <p>After 5 minutes, the teacher invites the trainees to share their insights with the group, leading to a brief discussion and an opportunity for questions. This activity concludes the module, followed by a summary of the key points covered and a reminder of the potentials of the use</p>

	of virtual reality in higher education. Lastly, the teacher thanks the trainees for their participation.
How	<ul style="list-style-type: none"> <li>• PPT/projector</li> </ul>
Where	<ul style="list-style-type: none"> <li>• PPT slides: 22-23</li> </ul>
Who	<p>The participants answer the questions and review their experiences in pairs.</p> <p>The teacher motivates the participants to share their impressions and the discussion if the chance arises. Lastly, the teacher summarizes the learnings from the module and thanks the trainees for the participation.</p>
Estimated Time	10 minutes